3 p. m., and 4 p. m., local time. These hours were selected for the readings to bring the series into harmony with the old records. The readings of the station barometer were corrected for temperature, instrumental error, and elevation; the readings of the other two were corrected for elevation only by adding .030 inch. The results are given in the accompanying table.[1] For a description of the two old barometers the reader is referred to the article cited above in the August REVIEW.

The means of the 217 readings made during the month are as follows, viz:

	Inches.
United States Weather Bureau No. 274	30.014
Hancock-Plageman barometer	29.998
Evelyn barometer	29.954

From this it appears that the Evelyn barometer is .060 inches too low, and the Hancock-Plageman barometer .016 inches too low. This difference, however, may be largely due to deterioration of the old instruments, especially in the case of the Evelyn barometer which has now been in use over half a century.

Then again we may compare the means of this series with the corresponding March means given in Table I of the article in the August REVIEW, bearing in mind, however, that the Evelyn observations were not corrected for elevation, while the others were. It will be observed that the means in the accompanying table are invariably lower than Mr. Evelyn's means, the average difference being .032 inch, which would be greater, perhaps .062 inch, if we make allowance for the correction for elevation. In the case of the Hancock record the difference is very slight, only .007 inch on the average. His 9 a. m. mean is .018 inch lower than mine, our 10 a. m. means are exactly the same, while my 3 p. m. mean is .004 inch lower than his.

It would appear, therefore, from these figures that the records compiled by Messrs. Evelyn, Hancock, and Plageman are quite trustworthy in view of the circumstances under which they were made.

The above remarks by Mr. Alexander, in connection with the data in Table 1, p. 331, MONTHLY WEATHER REVIEW for August, 1900, indicate very clearly a deterioration in the Evelyn barometer at some time subsequent to 1868. The exact time and also the nature of the deterioration can not be determined from the data at hand, but the original records should give us some information on these points.

The following are the averages of Mr. Alexander's readings:

Time.	Mean observed pressure.			W. B.—Hancock.	W. B.—Evelyn.
	Evelyn.	Hancock.	W. B. 274.		
8 a. m.	29.938	30.005	30.035	+.030	+.097
9 a. m.	29.966	30.025	30.048	+.023	+.082
10 a. m.	29.980	30.034	30.054	+.020	+.074
12 noon	29.977	30.015	30.031	+.018	+.054
2 p. m.	29.952	29.980	29.990	+.010	+.038
3 p. m.	29.935	29.966	29.975	+.009	+.040
4 p. m.	29.927	29.960	29.972	+.012	+.045

We note at once that both the Evelyn and Hancock barometers, as compared with the Weather Bureau barometer, stood higher during the p. m. than during the a. m. This is what we would expect when we remember that only the Weather Bureau barometer has been corrected for temperature, and the attached thermometers averaged about 5° higher during the p. m. than at 8 a. m.

In the Smithsonian Meteorological and Physical Tables, 1859, is a table of corrections for temperature, to be applied to barometers with glass or wooden scales, from which it is found that a rise of 5° in the temperature should cause a corresponding rise of 0.014 in the mercury in the barometer. As will be seen, the rise in the case of the Hancock barometer is somewhat greater than this, and corresponds to a temperature increase of about 7°.

We must, therefore, conclude that the instrumental correction to the Hancock barometer of + 0.016 inch, as determined by Mr. Alexander, is subject to modification on account of temperature effect. When the temperature is low this correction should be increased, and when the temperature is high it should be decreased. This applies to all past records. Apparently at a temperature of about 85° the Hancock and Weather Bureau barometers should read alike after the latter has been corrected for temperature. It might be possible to determine from the series of readings taken in March a more accurate table of corrections for temperature for the Hancock barometer than the one given in the Smithsonian tables; but this has not been attempted.

The Evelyn barometer readings are so discordant among themselves and with the Weather Bureau barometer readings that it is hardly worth while to discuss them. We can only say that there is a large and unknown error in most of the readings since 1868.—*H. H. K.*

[1] Not printed in detail.—ED.

MONTHLY STATEMENT OF AVERAGE WEATHER CONDITIONS FOR JUNE.

By Prof. E. B. GARRIOTT, U. S. Weather Bureau.

The following statements are based on average weather conditions for June, as determined by long series of observations. As the weather for any given June does not conform strictly to the average conditions, the statements can not be considered as forecasts.

On the North Atlantic Ocean June is a comparatively quiet month. Along the transatlantic steamer tracks the prevailing winds are from the southwest and severe storms are infrequent. From the Banks of Newfoundland to the American coast fog occurs with winds from the southeast quadrant, and the conditions which favor fog development obtain over some part of this region during fully one-half the days of the month. Icebergs are likely to be encountered over or near the Grand Banks as far south as latitude 40° or 41°.

In the West Indies the hurricane season does not begin until August; the wet season, however, continues from May to October. The typhoon season in the Philippine Islands begins in May.

In the Pacific coast States of the United States the dry season practically begins in June, although July and August are the driest months of the year. In the Plateau region the monthly rainfall approaches the July and August minimum. In Arizona and New Mexico June is a dry month, but it is followed by the two wettest months of the year. In Montana and generally east of the Rocky Mountains the heaviest monthly rainfall of the year usually occurs in June.

Frost is unusual in the United States in June, and when it does occur it is confined to mountain districts and to the northern tier of States.

RECENT PAPERS BEARING ON METEOROLOGY.

W. F. R. PHILLIPS, in charge of Library, etc.

The subjoined titles have been selected from the contents of the periodicals and serials recently received in the library of the Weather Bureau. The titles selected are of papers or other communications bearing on meteorology or cognate branches of science. This is not a complete index of the meteorological contents of all the journals from which it has been compiled; it shows only the articles that appear

to the compiler likely to be of particular interest in connection with the work of the Weather Bureau:

Nederlandsch Tijdschrift voor Meteorologie. Groningen. Eerste Jaargang.
Sieberg, A. De Meteorologie in hare beteeknis voor het praktische leven. Pp. 177–179.
Comptes Rendus. Paris. Tome 132.
Ponsot, —. Actions chimiques dans les systèmes dissous ou gazeux. Tension de vapeur. Hypothèse d'Avogadro. Pp. 1551–1553.
Journale de Physique. Paris. Tome 10.
Lefevre, J. Recherches sur la conductibilité de la peau de l'organisme vivant et sur ses variations en fonction de la température extérieure. Étude sur l'homme. Pp. 380–388.
Gaea. Leipzig. 37 *Jahrg.*
—. Kugelblitze über Wolken. Pp. 486–488.
Popular Science Monthly. New York. Vol. 59.
Bailey, Willis. Climate and Carbonic Acid. Pp. 242–256.
Waldo, Frank. The Blue Hill Meteorological Observatory. Pp. 290–304.
Philosophical Magazine. London. Vol. 2. *6th Series.*
Rose-Innes, J. On the Practical Attainment of the Thermodynamic Scale of Temperature. Pp. 130–144.
Kelvin, Lord. Nineteenth Century Clouds over the Dynamical Theory of Heat and Light. Pp. 1–40.
Ciel et Terre. Bruxelles. 22me année.
Tronquay, Georges du. Observation d'une trombe terrestre. Pp. 186–190.
Lancaster, A. Les refroidissements périodiques de mai. Pp. 205–209.
Scientific American Supplement. New York. Vol. 52.
—— Living Barometers. P. 21351.
—— Congress of Aeronautics. P. 21372.
Proceedings of the Royal Society. London. Vol. 68.
Steele, B. D. The Measurement of Ionic Velocities in Aqueous Solution, and the Existence of Complex Ions. Pp. 358–360.
Nature. London. Vol. 62.
Aitken, John. Atmospheric Electricity. P. 336.
Herschel, A. S. A Vertical Light-beam through the Setting Sun. P. 232.
Dewar, James. The Nadir of Temperature and Allied Problems. Pp. 233–234.
—— The Antarctic Expedition. Pp. 233–234.
S., M. Curious Raindrops.
Liveing, G. D. and Dewar, J. On the Separation of the Least Volatile Gases of Atmospheric Air, and their Spectra. Pp. 294–295.
—— The Total Eclipse of May 18, 1901. Pp. 289–290.
Zeitschrift für Gewässerkunde. Leipzig. 4 *Band.*
Oppokow, E. Das Verhalten des Grundwassers in der Stadt Neshin im Zusammenhange mit den meteorologischen Elementen. Pp. 76–99.
Gravelius, H. Die jährliche Periode der Regenmenge zu Marburg a | Lahn. Pp. 99–103.
Gravelius. H. Die Eisverhältnisse des Dnjepr. Pp. 103–108.
Journal of the Franklin Institute. Philadelphia. Vol. 152.
Balch, Edwin Swift. Antarctica: A History of Antarctic Discovery.
McClellen, William. Thermometer Glass at Higher Temperatures. Pp. 63–72.
Illustrirte Aeronautische Mittheilungen. Strassburg. 1901.
Emden, E. Theoretische Grundlagen der Ballonführung. Pp. 77–88.
Annales Agronomiques. Paris. Tome 27.
Giustiniani. L'humidité des terres et la dentrification. Pp. 262–285.
Archives des Sciences Physiques et Naturelles. Genève. Tome 11.
Ebert. Hermann. Les seiches du Lac de Starnberg en Bavière. Pp. 578–586.
Annuaire de la Société Météorologique de France. Tours. 49*me année.* 1901.
Lemoine, G. Les progrès de la météorologie en France dans la seconde moitié du XIX siècle. Pp. 113–124.
Meteorologische Zeitschrift. Wien. Band 18.
Bergholz, P. Die Luftdruckverhältnisse und die Windbewegungen im Fernen Osten. Pp. 241–250.
Mack, K. Ueber Wirbelbewegungen in vulkanischen Rauchwolken. P. 250–257.
Valentin, J. Die österreichischen Ballonfahrten beim Luftdruck-Maximum am 10 Januar, 1901. Pp. 257–270.
Obermayer, A. v. Aeltere Versuche zum Schutze gegen Hagelschläge. Pp. 270–273.
Hergesell, —. Vorläufige Mittheilung über die internationale Ballonfahrt am 19 April, 1901. Pp. 273–275.
—— P. Blaserna über das Wetterschiessen. P. 275.
Pernter, J. M. Die Erfolge des Wetterschiessens in Italien 1900. P. 275–278.
Hartmann, J. Ein Hilfsmittel zur Messung der Entfernung des Blitzes. P. 278.
Bohm, R. Chemische Untersuchung des in Oberweissburg, Post St. Michael im Lungau gefallenen rothen Schnees. Pp. 278–279.
Rona, S. Nachtrag zu den Bemerkungen über den Staubfall im März. Pp. 279–280.
—— Ein Blutregen in Brüssel im Jahre 1646. Pp. 280–282.
Pernter, J. M. Ungewöhnliche Abendbeleuchtung. P. 282.
—— Fünfzehn Grad absolute Temperatur. P. 283.
—— Die Rauchsäulen hoher Vulkane als Windfahnen. P. 283.

WEATHER BUREAU EXHIBIT AT THE PAN-AMERICAN EXPOSITION, BUFFALO, N. Y.

By D. T. MARINE, in charge of Installation.

The Weather Bureau exhibit at the Pan-American Exposition is located in the northeast corner of the North Pavilion, Government Building, and is adjacent to and forms a part of the official exhibit of the United States Department of Agriculture. The exhibit is shown quite completely in the accompanying illustrations—Plates I, II, and III—but can best be described under four general groups, or sections, as follows:

1. A collection of meteorological instruments and apparatus of latest improved designs, some in actual operation as employed at the more important telegraphic reporting stations of the Weather Bureau; kites and kite outfits as used in aerial investigations.

2. A collection of storm-warning flags and lanterns, with supports and towers, as used on the lakes and seacoasts for giving warnings of the approach of storms dangerous to shipping; model tower and weather flags.

3. A complete set of framed charts and publications of the Bureau, presenting clearly and graphically the climatic conditions of the United States; miscellaneous photographs of clouds, lightning, etc.

4. A map-printing and forecast section in daily operation.

1. METEOROLOGICAL INSTRUMENTS AND APPARATUS.

The general arrangement of this section of the exhibit is shown on Plate I, a view taken from one of the main aisles of the building, but does not include several instruments and apparatus on both the right and left hand.

For measuring atmospheric pressure the following are displayed:

Normal mercurial barograph, designed by Prof. C. F. Marvin. Records automatically and continuously the varying pressure of the air by means of a mercurial barometer tube suspended on a balanced scale beam. Aneroid barographs of the Richard pattern, such as are in actual use at 150 stations of the Weather Bureau. Nonrecording mercurial barometers of the standard pattern, in cases of special design, together with two sample barometers having sections cut out of the cisterns to show details of construction. For the especial benefit of the lake maritime interests there are also displayed samples of the best grades of compensated aneroid barometers, such as the patented Watkin, and others of English and French manufacture. These samples are loaned for exhibit by Mr. Julien P. Friez, of the Belfort Observatory, Baltimore, Md.

Air temperature apparatus.—Under the head of instruments for indicating and recording the temperature of the air we have: (*a*) The telethermograph, or transmitting thermometer, manufactured by Richard, Paris, in two forms; one is in actual operation with transmitter located in the instrument shelter on the roof and the register in the exhibit, and the other is shown complete in the exhibit. These instruments produce continuous and automatic records of the temperature of the air at a distance, and are especially desirable where the outdoor instrument shelter must be located some distance from the observer's office. (*b*) Thermographs of the regular pattern, such as are in actual operation at 150 stations of the Weather Bureau, and which produce a continuous and automatic record of the temperature wherever placed. (*c*) A col-